

## Evidence of Pollution

Pollution is a key issue on our rivers. It may come from a specific point or be more 'diffuse' in nature, arising from across the surrounding land and washing into the rivers. Try to survey after different conditions such as after heavy rain or during a dry spell to better understand how your river responds and to see if pollution is evident.

### Pollution Sources

If there is an outfall (i.e. pipe, culvert, valve, flap) present, ensure you take note of whether it is discharging. It would be of particular concern if there was foul smelling or coloured discharge occurring during dry weather indicating misconnection. In urban areas mis-connected pipes can have a cumulative effect which will compromise the biodiversity and amenity value of the water. Not all outfalls are polluted and some could just be culverted watercourses.



Outfalls are generally the discharge point for surface water to run-off into rivers. However, there can be an issue of improper connections between surface water and grey water pipes causing grey water from things like our laundry or washing up to enter the river instead of making its way to a treatment plant. This has an adverse effect on the natural environment by increasing ammonia and phosphate levels leading to a decrease in dissolved oxygen. Combined sewer overflow (CSO) discharge waste is associated with sewage treatment works. They should only discharge during or just after big storms as they act as an overflow. If you see one discharging during dry weather you should call the Environment Agency on **0800 80 70 60**.

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Diffuse pollution tends to arise from a large area, or over a long time period. The pollution may still be visible entering the river at a specific location, but the source is more diffuse. The following are some common types of diffuse pollution sources:



Soil erosion

Soil is a major source of water pollution. Too much fine sediment causes siltation of spawning gravels, which deprives juveniles of vital oxygen. It can also clog fish gills and inhibit feeding behaviour. Also, soil can transport nutrients and chemicals to the river.

Poorly managed soils are vulnerable to erosion, and mud on roads will also soon reach nearby streams.

When stock have direct access to the river, soil and sediment is mobilised as they trample on the river banks, and their waste can introduce microbial pollution. Hoof marks down to the river are a good indicator of stock access.



Cattle/ stock access to river

Pollution may enter rivers from a number of farm sources (e.g. slurry stores, yards), which often contain nutrients and chemicals. Chemicals may be toxic to wildlife, while nutrients can result in excessive algal growth. As this algae decomposes, the oxygen levels in the water are reduced, which is very harmful to fish and other wildlife.



Farm run off

As well as from the land surface, sediment may be eroded from the river banks themselves. River bank erosion is natural, but this process can be accelerated by certain land uses and vegetation.



Collapsed river banks

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Grey water/Misconnection

When pollution enters the river from urban sources the water may take on a grey colour. It may also smell like washing powder or detergent, which is a key sign of 'misconnected' household pipes.

Road surfaces are generally impermeable, allowing rainfall to flow rapidly across them. As water crosses roads, it may pick up fuels, heavy metals, micro-plastics and litter, delivering them to the river.



Road run off

## Evidence of Recent Pollution

There are some types of pollution which are clearly visible, or their effects are clearly visible, but their source cannot easily be identified or the source may be evident but not currently active.



Sewage related litter

There are certain products linked to sewage. For example sanitary products, cotton buds and baby wipes may make their way into sewage and into our rivers, often through poorly or inadequately screened CSOs.

Litter is a serious threat to our rivers. Plastic bags and containers can trap fauna and are toxic if digested. There may also be additional substances within the waste that will impact water quality and the ecology of the river.



Litter/ fly-tipping



Smothering Algae

The growth of filamentous algae tends to be the result of human activity, as unnaturally large inputs of nutrients favours algal blooms. This algae outcompetes other species and depletes oxygen levels, threatening fish and invertebrate species.

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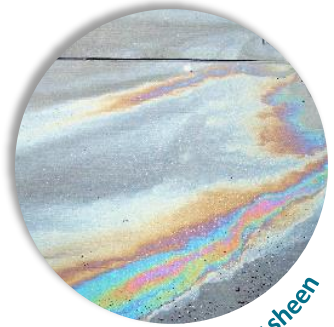
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Unpleasant odour

Unpleasant odours in our rivers come in many forms. Rotten egg smells often relate to raw sewage, decomposition of organic matter or low oxygen levels. Sharp smells may indicate (agro-) chemicals and gas smells suggest industrial sources, waste water or pollution from waste.

Although there are natural sources of oil, often a rainbow-coloured, oily sheen on a river surface is a sign that petroleum or other oils have entered the river.



Oily sheen

Sewage fungus is found where there is a build up of a mass of filamentous bacteria. This is most likely where there are misconnections in the sewage system or farm waste running into the river. It is usually a sign of serious pollution.



Sewage fungus

Foam forms when surfactants are present (molecules that alter the water tension). Some surfactants are naturally forming but if the foam is a pure white colour with a fragrant smell, this is a sign of pollution.



Foam

Don't forget, if you see anything you're not sure about, take a photo and ask us about it by emailing [csi@wrt.org.uk](mailto:csi@wrt.org.uk).

If you see any of the following issues, call the Environment Agency's 24-hour incident hotline: **0800 80 70 60**. Pollution to water or land, damage or danger to the natural environment, dead fish or fish gasping for air, collapsed or badly damaged river banks.